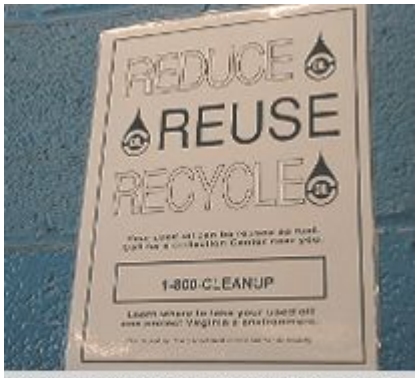
Targeting public outreach/education

Education/Outreach for Commercial Activities

Public Education and Outreach on Storm Water Impacts

Description



Signs can be posted to educate both employees and the public about the impacts of business activities on water quality

The key to a successful outreach campaign is to target a message to a specific audience. The target audience is the group to whom a storm water pollution message is to be addressed. Industries and businesses can be a very influential component of the watershed. Many commercial activities contribute to storm water pollution (such as vehicle washing, landscape fertilization, and improper hazardous waste disposal). Therefore, it is important to address commercial activities specifically in an outreach strategy. It is also important to recognize that in most cases incentives must be provided to encourage businesses to change their behavior.

Applicability

There are numerous ways to provide education and outreach for commercial activities. Materials designed for businesses can include posters, magnets, calendars, flyers, brochures, and best management practices (BMPs) fact sheets or handbooks. For example, if the target audience includes restaurants and auto maintenance industries, you might consider developing and distributing educational brochures and posters to these industries that outline BMPs that reduce urban runoff volume and pollutant concentration that result from their operations. Several storm water programs also offer rewards to businesses that participate in a "storm water business" program and meet specific criteria. Such commercial storm water pollution prevention programs have been very successful across the nation.

Implementation

Depending on time, financial, and resource constraints, a municipality might wish to target all or several types of commercial activities. Some common practices are applicable to most industries and can be used on a variety of outreach materials. At all businesses, workers should "know their site," notice where runoff from their property goes, and know where their drain inlets go. Good housekeeping practices are required to keep pollutants out of storm drains and are also a good idea if a property drains to the sanitary sewer or combined sewer. The business should avoid toxic materials to the extent possible, store liquids where they cannot be knocked over, and consider the best place to conduct specific activities. For example, it might be better to clean a fleet of company vehicles at a commercial car wash rather than washing vehicles on the company's property because dirt, grease, and detergents can be treated effectively at car washes. To help keep rain from washing away pollutants, companies should be advised to keep dumpsters and other containers securely closed; store containers under cover; and cover stockpiled materials such as gravel, wood chips, and building materials (for example, by using plastic sheeting).

Businesses should be asked to clean up their sites, but not by washing grit and grime into the storm drainage system. Instead they should pick up litter, sweep areas and dispose of sweepings in the garbage (unless they are hazardous and require special disposal), and use absorbent materials to absorb oils.

Some commonly recommended BMPs for commercial activities include

- Good storage practices
- Waste management
- Vehicle and equipment washing
- Spill prevention and cleanup
- Property maintenance
- Training and education for employees and customers
- Eliminating improper discharges to storm drains
- Trucking and shipping/receiving
- Redesigning parking and landscaped areas to include storm water management features (i.e. rain gardens, bioretention areas, collection areas for roof runoff, and shared parking)

As an example, if the targeted areas are parking lots and parking garages, one might develop a slogan such as "Clean Lots and Clean Waters." Under this slogan, a colorful booklet could be produced. This booklet might describe proper parking lot cleaning procedures, such as the following:

- Promptly cleaning up vehicle leaks
- Using a rag or absorbent material to properly dispose of automotive fluids
- Regularly sweeping the parking lot and picking up litter
- Avoiding washing down the parking lot unless a mop for spot cleaning is used
- Disposing of the mop water to a sanitary sewer
- Rinsing the parking lot with water only (no soap) after first sweeping it up and cleaning up oil spots with an absorbent, or collecting the soapy rinse water and pumping it to the sanitary sewer

After the booklet has been developed, it can be distributed to local garages and parking lot authorities. The effectiveness of the outreach strategy should be evaluated using surveys or monitoring changes in water quality at the outlets of or downstream from targeted areas.

Automotive Service Centers and Garages. The solvents, oils, and paints used in automotive garages and service centers can become major storm water pollutants if handled improperly. Consequently, garages are typically targeted for storm water education campaigns. Outreach materials specifically tailored for the automotive repair industry can be created. The materials can describe how to develop the outreach message and select appropriate materials and provide information regarding distribution of a combination of materials such as posters, which can be hung in the garage, and flyers or brochures, which can be distributed to employees and kept in the shop's office or lobby. Titles should be eye-catching and meaningful to the audience, such as "Keep Your Shop in Tune . . . and Protect the Bay!" or "Is Water Quality Going Down the Drain in Your Garage?"

The following are recommended topics with practices to control waste from auto shop activities:

- Changing automotive fluids (brake fluid, transmission fluid, gear oil, radiator fluids, and air conditioner Freon or refrigerant).
- Working on engines, transmissions, and miscellaneous repairs.
- Preventing leaks and spills.
- Cleaning up spills.
- Identifying and controlling wastewater and discharges.
- Fueling vehicles.
- Removing and storing batteries.
- Cleaning parts.
- Metal grinding and finishing.
- Storing and disposing of waste.
- Selecting and controlling inventory.
- Outdoor parking and auto maintenance.
- Vehicle washing, engine cleaning, and automotive steam cleaning.
- Training and educating employees and customers.
- Pretreating water discharged to the sanitary sewer.
- Installing a roof over fueling areas or outdoor working areas (to keep storm water off these surfaces).
- Regrading or repaving outdoor areas.
- Recycling spent fluids on-site.

Home mechanics. In addition to targeting automotive service facilities, many storm water programs also provide outreach materials for automotive "do-it-yourselfers." Pamphlets, brochures, and flyers can be used to outline how to properly dispose of used motor oil and other automotive fluids. Contact information for local commercial recyclers of automotive fluids should be included. To target home mechanics specifically, materials can be placed in automotive supply outlets or mailed to members of a mechanics club or subscribers to home mechanic periodicals.

Municipalities should provide incentives for businesses to participate in pollution prevention activities. Participants can be rewarded with technical assistance, promotional items, and public recognition. In Austin, Texas, "Clean Water Partners" receive banners, T-shirts, and mention in newspapers and newsletters. King County, Washington's "EnviroStars" are promoted through the Green Business Directory, a directory of environmentally friendly businesses distributed to the public.

A municipality can choose to establish a better business program, which provides assistance, incentives, and recognition for businesses that use practices to effectively reduce storm water pollution. Some programs target all businesses in the community, whereas others focus on a specific industry, such as automotive shops, power washers, and carpet cleaners. Palo Alto's Clean Bay Business Program offers recognition and promotional advantages to vehicle service facilities that implement certain BMPs (NRDC, 1999).

In Portland, Oregon, the metropolitan Portland public agencies, known as the Pollution Prevention Outreach (P2O) Team created the Eco-Logical Business Program to advise automotive shops on ways to manage wastes and reduce environmental impacts. To date, five automotive service operations have volunteered for this new program and subsequently met certification criteria. These criteria recognize shops that use management practices designed to limit waste creation and prevent releases to the environment through spills or improper disposal. In most cases, these practices go beyond the minimum to comply with environmental regulations. Some automotive shop pollution prevention and environmental protection practices include recycling or reusing automotive fluids and solvents, using less-toxic cleaners and degreasers, and using secondary containment structures to prevent spills. The program provides an incentive for conscientious businesses to go beyond basic compliance expectations and take extra steps to protect the environment. This sets a new standard for the industry and leads to improved environmental protection. The participating auto shops each received a certificate and window sticker during a news conference. Program coordinators hope that recognition as an environmentally friendly business will be a useful marketing tool for the shops, while attracting other businesses to join the program as well.

Benefits

One of the benefits of outreach programs for businesses, as with all outreach programs, is an increase in public awareness about water quality issues. Additionally, because many business practices use materials and chemicals that are harmful to the environment, it is important for municipalities to inform owners, operators, and employees about which practices should be avoided to maintain and improve water quality. Also, businesses that are more aware of environmental issues might be willing to partner with municipalities and sponsor programs and activities that reach a wider audience in the community. The businesses receive advertising in return for donations of materials, personnel, or use of their facilities.

Limitations

Commercial outreach programs do have some limitations. There are many different types of commercial activities, and outreach programs might not be applicable to some of them. Before developing and implementing an outreach program, municipalities should prioritize business types that they think might contribute most to storm water pollution or that might be most receptive to outreach. Because the measures that the municipality proposes for businesses are voluntary, owners, operators, and employees must be convinced that changing their behavior is valuable and worth their efforts.

Effectiveness

Municipalities can gauge the effectiveness of their outreach program for commercial activities through surveys of employees. The survey can determine if outreach materials and programs have changed business policies or employee behavior. Also, if a municipality has an incentive program that encourages businesses to register to be listed as a better business, the registration process can be used to gather information about which pollution prevention practices are being used at each business. Additionally, the number of registrants can be used to gauge the effectiveness of the advertising campaign for the program.

Cost

The costs associated with developing an outreach campaign for commercial activities depend on the types and quantities of materials produced, the resources needed (for distribution, contacting businesses in person, etc.), and the general scope of the campaign. Photocopying or printing prices can vary widely, depending on the complexity of the brochure, pamphlet, or poster. Municipalities should consider financial constraints when developing outreach materials. Implementing a "Better Business" program will require dedicated labor, database management, and educational information.

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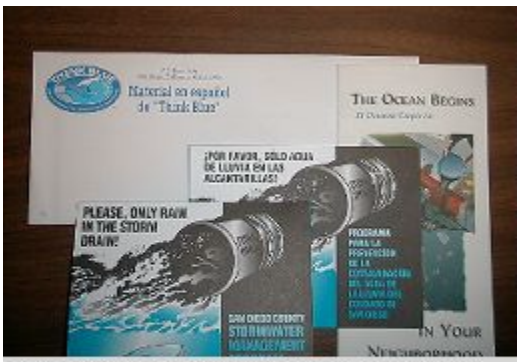
Tailoring Outreach Programs to Minority and Disadvantaged Communities and Children

Public Education and Outreach on Storm Water Impacts

Description



Educational materials can be written in both English and other languages to ensure that a program's message reaches all intended audiences

Many communities are ethnically and culturally diverse, and a portion of the population speaks languages other than English. The messages contained in signs, brochures, advertisements, newsletters, and other outreach materials that are printed only in English are mostly lost on these groups. For example, in areas such as southern Florida and southern California, where a large proportion of the population consists of Spanish-speaking immigrants, it is important to reach out to non-English speaking residents and inform them about storm water pollution issues and the importance of clean water, because their activities can generate a substantial amount of pollution. This type of expanded outreach program is not limited to these areas. Census 2000 figures show increasing minority populations in urban centers and suburbs such as Washington, DC (Fernandez, 2001; Cohn and Witt, 2001), and New York (Cohn, 2001), among others.

Other groups that communities can target for outreach activities are disadvantaged persons who may not have the opportunity to learn about or participate in existing programs and activities. Municipal officials and representatives can design and implement special education programs in poorer neighborhoods to listen to and address the concerns of these residents and to offer suggestions about ways that these residents can improve their neighborhood and environment.

Applicability

Municipalities are typically aware of the locations of ethnic enclaves and low-income areas. However, historic distinctions between neighborhoods may not be accurate and are most likely changing. It is important for municipalities to survey residents about neighborhood demographics and determine if a specialized campaign is needed in a particular area. The survey can target areas that the municipality deems most likely to contain minority and disadvantaged residents. Municipalities can seek assistance from sociology departments at local universities to help with the survey effort or can hire a firm specializing in focus groups and polling to conduct the research.

Once minority and disadvantaged groups have been identified, an analysis of the target group should be conducted. This analysis should determine the audience's perception of storm water issues so the municipality can tailor the outreach program to the appropriate knowledge base and address specific issues of concern. This tailoring will increase the likelihood that the groups are motivated and willing to participate in the program. For example, does the audience know what a watershed is or understand what causes polluted runoff? If not, those terms should be defined in the messages.

It is also useful for the municipality to find out how the target audience receives its information, in order to more effectively develop, format, and distribute environmental messages. Which newspapers, magazines, or newsletters do they read? To what organizations do they belong? Do they watch local news or cable television? Do they receive information in other forms such as community radio programs? Who are the opinion leaders, and how can they be reached?

Implementation

After gathering information on the target audience, a message should be crafted that will engage them and help achieve the objectives of the program. To be effective, messages should be understood by the target audience and appeal to them on their own terms.

Tailoring Programs for Minorities. Storm water objectives are more likely to be attained if the largest audience possible is reached. However, to ensure that the message is understood, smaller target audiences might need to be identified. These smaller groups represent specific ages, demographics, and nationalities. If the target audience has a large proportion of minority groups, the outreach strategy should address each of these groups. Representatives from minority groups can help to develop the outreach strategy. They can provide critical insight to help ensure that the message comes across as it is intended.

In bilingual areas, materials should be developed in both English and the local language. Furthermore, care should be taken to ensure that the translation is accurate and the meaning of the message is not lost or changed. A classic example of a marketing mishap is when General Motors introduced its Chevy Nova into Latin America; in Spanish "no va" translates into "it won't go," making the car very unattractive to buyers. Pepsi's "Come alive with the Pepsi generation" translated into Chinese came across as "Pepsi brings your ancestors back from the grave." The "language" of the message should not only be correct but also understandable. Scientific jargon should be avoided and terms associated with the initiative (e.g., storm water, nonpoint source pollution, and runoff) should be defined. Graphics should be used to convey the message, rather than text. If text must be used it should be kept brief, direct, and clear. If the reading level of the audience (especially children) is unknown, the message can be pretested with representatives of the target group to determine its level of appropriateness.

Partnering with minority organizations can be the best way to reach a minority audience effectively. Temples, churches, minority civic organizations, and the like are in touch with minority communities and understand their perspectives and motivations. Not only can they provide general information about the target group, but they can also serve as an excellent medium through which to channel the message. Organization leaders can be contacted to inform them about the objectives of the program and why it is important to their members. Organizations can announce upcoming events at meetings or services, publish releases in newsletters and notices, and organize presentations. It is important to stress how storm water pollution prevention affects *them* in particular.

The news media are an important and powerful means of communicating watershed messages to both targeted and broad audiences. When a campaign is initiated, minority-focused newspapers, magazines, and television and radio stations in the area should be contacted. The proper format--whether in English, another language, or both--should be provided. Public service announcements and headlines should be culturally appropriate.

Tailoring Programs for Disadvantaged Communities. The same principles for targeting specific audiences apply to disadvantaged communities. When creating a storm water pollution message, the message should be specific and tied to what the community values (such as clean drinking water or clean waters for fishing and recreation). The audience should know what their *direct benefit* will be from getting involved in the issue or modifying their behavior. For example, not letting the hose run water into the street when not in use can save them money on their water bill. Messages should be positive because positive messages tend to be more effective in changing people's habits than negative ones: "Collect your used motor oil" instead of "Don't dump your oil." Other benefits that could be listed include money savings, time savings, convenience, health improvements, and efficiency. The message should focus on making everything--the behavior change requested, the involvement needed, and the support required--user-friendly.

Tailoring Programs for Children. There are many ways to target children with an outreach program. Perhaps the easiest way is through schools and day care centers. Child-targeted printed materials (posters, flyers, stickers, etc.) can be displayed in schools, libraries, and at playgrounds. Teachers might be willing to distribute storm water curriculum packets and to organize special events, such as a storm water pollution day or awareness month. Many watershed outreach programs hold water festivals that include everything from games and interactive booths to river/beach cleanups and essay contests. Many storm water pollution programs have partnered with schools to hold poster, logo, and slogan contests and have used the winners for their outreach materials. Participants can receive awards, such as certificates of participation, T-shirts, posters, and stickers.

When creating outreach materials for children, the messages should be simple and understandable. Graphics such as photos and mascots can help. Mascots become familiar faces that can take on personalities, stories, and "lives" of their own. Child-friendly people or animals can be adapted into puppets, comics, posters, banners, displays, festivals, parades, calendars, contests, skits, student lessons, or activities. Materials that are interactive, such as workbooks, "laboratory" experiments, puzzles, and games are effective because children learn best by "doing" rather than "being told." Many storm water program web sites have added an interactive "kids' page" where children can learn about storm water pollution by solving puzzles, playing games, and performing experiments on the Internet.

Getting children's organizations involved in specific, hands-on projects can be effective. Approach children's groups to help with stream cleanups, wetland plantings, and volunteer monitoring. Most storm water programs partner with youth groups during storm drain stenciling projects. Such activities can be incorporated into the group's curriculum. For example, by participating in a storm drain stenciling project, Girl Scouts and Boy Scouts can earn environmental badges.

Community Calendar Gets the Message Out. In an effort to reach every residence in the target area, including lower income and minority households, the Environmental Health Coalition (EHC) of San Diego's Chollas Creek Watershed mailed its 1992 calendar to every business and home in the target watershed area. The calendar was in full color and fully bilingual (English and Spanish). The winning posters from a school poster art contest provided the art for each month. The calendar contained specific information on the different types of nonpoint source pollution and offered tips on how residents could reduce their contribution to water pollution in San Diego Bay. Because a large portion of its target audience was ethnically diverse, the EHC expanded its calendar to include dates of interest to these communities. Dates such as Kwanzaa, Boun Soang Heua, and the Chicano Moratorium were noted, in addition to more commonly recognized holidays. The EHC also included dates of activities from neighborhood churches, activity centers, and other community groups. The center of the calendar featured a pull-out of a watershed painting by a renowned local artist. The calendar was printed on recycled paper using soy-based inks.

The Chollas Creek Watershed Protection Calendar was extraordinarily successful. Similar calendars have already been produced in two other states and Mexico. The calendar was expensive to produce, in terms of money and time, but it provided education on water pollution prevention over an entire year and represented a gift from the EHC (through their Chollas Creek Project) to the community.

Effectiveness

Targeting specific groups can be effective when cultural, language, and special needs of such groups are understood. Municipalities can gauge the effectiveness of the targeted outreach programs by monitoring participation in watershed cleanups and other environmental activities, surveying residents about changes in their behavior resulting from outreach efforts, or monitoring water quality and general environmental conditions (evidence of nonpoint source pollution such as trash or motor oil spills) in or downstream from ethnic enclaves or low-income areas.

Benefits

There are many benefits to targeting specific audiences, especially if they constitute a large proportion of the population. If the outreach program is tailored to a specific audience, the participants are more likely to feel that they are an important part of the effort. They can learn more specifically about the ways they might cause storm water pollution and how it affects their neighborhood environment and quality of life. They also learn what they can do to help curb storm water pollution, improve conditions in their neighborhood, and be aware of and prevent environmental injustices.

Limitations

Municipalities should understand cultural issues, language barriers, and specific needs in order to respond to questions with sensitivity and engage participants in environmental efforts. Research about community demographics is key to identifying where target audiences reside and how they receive information. The more knowledge the municipality has about the target audiences, the better they can use limited resources to effectively send their message.

Cost

The cost of targeting specific groups depends on the particular outreach materials and programs that are developed for these groups. Public service announcements and other news releases are generally free of charge, but staff time for preparation can be substantial. Costs for outreach materials vary widely, but municipalities can choose a medium appropriate to the available resources.

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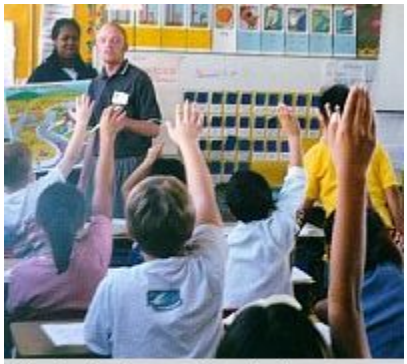
Classroom Education on Storm Water

Public Education and Outreach on Storm Water Impacts

Description



Students learn about storm water pollution (Source: City of Sacramento Storm Water Management Program, no date)

Classroom education is an integral part of any storm water pollution outreach program. Providing storm water education through schools exposes the message not only to students but to their parents as well. Many municipal storm water programs have partnered with educators and experts to develop storm water-related curricula for the classroom. Fortunately, these lessons need not be elaborate or expensive to be effective.

Applicability

It is important to emphasize that the role of a municipality is to support a school district's effort to educate students about storm water, not to dictate what programs and materials the school should use. Municipalities should work with school officials to identify their needs. For example, if the schools request storm water outreach materials, municipalities can provide educational aids that range from simple photocopied handouts, overheads, posters, and slide shows to more costly and elaborate endeavors such as working models and displays. The Daly City (California) Utilities gave a slide show and video presentation depicting the problem of marine entanglement to an eighth-grade classroom just before their 1998 beach cleanup. Afterward they had their largest volunteer turnout ever for a cleanup.

Implementation

Building a strong relationship with the school district is the most important step in getting storm water education into the schools. One of the first questions to ask is what storm water education program, if any, do the schools already implement, or want to see in their schools but lack the resources to do so. When developing an outreach message for children, choose the age ranges to target. Will the focus be on students in preschool, grammar school, middle school, and/or high school? Should the curricula be grade-level specific? Will the program involve a year-long study, a semester, a special topic or event, or a single presentation by an organization? What special equipment might be needed? For example, the municipality might purchase a small-scale watershed model that can be loaned to schools for demonstrations as part of a watershed education program. The answers to these questions and others will be determined by both the school district's needs and the municipal resources available.

If the school district requests that education materials and programs be developed by the municipality, municipal officials can get ideas for these materials from several resources. Many national and regional organizations can provide assistance and materials for storm water education. The national Center for Environmental Education (CEE) was established in 1990 to provide teachers with a single clearinghouse for K–12 environmental education materials (CEE, no date). CEE has written a guidebook titled *Blueprint for a Green School* to tackle the environmental challenges found inside schools and on school playgrounds. CEE's outreach department works with schools nationwide. One of the most popular programs, *Green School's Peer Partners in Environmental Education*, organizes high school students to adopt an elementary school or class. A free copy of the on-line program is available through Earth Spirit at 310-582-8228. CEE's Internet page at www.cee-ane.org is another good source of information.

Many additional classroom materials are available for use free of cost. Communities such as Colorado Springs, Colorado, have made copies of their educational materials available for downloading from the Internet at www.csu.org/water/watereducation/watereducation.html. The Colorado Springs educational series includes water-related artwork, creative writing, research conducted by students, Internet programs and games, a virtual tour of the Colorado Springs water system, and the "Keepers of the Water" classroom lesson series. Developed by local teachers, water experts, and education specialists, the study-based units explore the characteristics of the local water environment as it affects the harvesting, treatment, and delivery of drinking water and the collection, treatment, and return of wastewater. The interdisciplinary nature of these activities enables teachers to work in teams and help students explore a range of water issues (Colorado Springs Utilities, 1996).

The city of Eugene's (Oregon) Storm Water Management Program offers a free 13-page booklet listing storm water videos, classroom presentations, demonstrations, and models available for checkout to Eugene teachers. Guest speakers also are available to give classroom presentations.

The city of Los Angeles's Storm Water Program offers several classroom materials, including a *Special Agent Task Book* to supplement its EcoTours program targeting third and fourth graders, the *Clean Water Patrol* coloring book (which teaches children about their urban forest and how neighborhood behavior can affect the environment), and colorful vinyl stickers with clever storm water sayings, such as "You Otter Not Pollute."

The University of Wisconsin offers educational materials titled "Educating Young People About Water." These materials can help the user develop a community-based, youth education program that targets youths, links key members of the community, and allows both groups to work together toward common water education goals. Various guides and other educational materials are available from the university. More information about these materials and ordering information can be found at www.uwex.edu/erc/ywc/index.html.

Other programs have created models or displays to be featured in several schools. Sacramento, California's Storm Water Management Program has designed a working storm water model display that demonstrates the many sources of storm water pollution. The exhibit features a model of a typical section of an urban community showing storm water and pollution draining into a creek. Real water flowing in the creek and periodic rainstorms on the model draw attention from both children and adults. Interactive buttons highlight different sources of storm water pollution occurring within the community. Brief explanations of storm water pollution accompany the model display and help to convey the important message that storm water flows directly, untreated, into area creeks and rivers. The model is available on a limited basis for loan to schools and other educational programs in the Sacramento area (City of Sacramento, 1999).

San Diego's Environmental Health Coalition (EHC) has developed two excellent environmental curricula for the San Diego Regional Household Hazardous Materials Program (SDRHHMP). *Pollution Solutions Start at Home* is an interdisciplinary curriculum for middle and junior high schools. *Household Toxics* is a curriculum for fourth-through sixth-grade students about the safe use and disposal of household hazardous materials and safer alternatives to such products. EHC also produces a Watershed Protection Kit, which includes two learning activity packets, 10 storm drain stencils, and a carrying case ($50.00). These materials and others are available through the Environmental Health Coalition, 1717 Kettner, Suite 100, San Diego, CA 92101, 619-235-0281.

Seattle Public Utilities has recently turned its award-winning "Water You Doing" video into an educational CD-ROM for classrooms and libraries. The CD features the video, games, activities, and career profiles highlighting Seattle's and Puget Sound's water resources. The CD is available for use at the Environmental Information Center in the main Seattle Public Library and all 22 branches. It is being distributed to teachers within Seattle Public Utilities' service area at no cost. Outside Seattle, discs are available for a nominal fee to cover the cost of pressing and shipping. Copies can be obtained from Seattle Public Utilities by contacting Richard Gustav at Seattle Public Utilities, 710 Second Ave., 10th floor, Seattle, WA 98104, 206-684-7591.

Home*A*Syst is a program designed to aid homeowners and renters in understanding environmental risks in and around their home. The program guides the public in developing action plans for making voluntary changes to prevent pollution. Additionally, Home*A*Syst helps individuals understand what they can do to help protect the environment, how they should take action, and where they can find the support necessary to act. To accomplish this, the program offers a guide entitled *Home*A*Syst: An Environmental Risk-Assessment Guide for the Home,* which provides in-depth information and comprehensive checklists to help users evaluate environmental risks. The guide is composed of eleven chapters that cover a variety of topics, including storm water. If children are made aware of this resource, they can encourage their parents to use the program and reduce environmental risks around the home. More information about Home*A*Syst can be found at www.uwex.edu/homeasyst.

The U.S. Geological Survey (USGS) offers a number of educational resources. Posters are available for teaching students in grades K−12, about wastewater, water quality, groundwater, and water use. The USGS also offers fact sheets, useful links, and an educational outreach program designed to stimulate interest in fresh water resources for students and educators in grades K−12. This information can be found at water.usgs.gov/education.html. Similar to USGS, EPA offers a number of educational resources for students and teachers, which are located specifically in their environmental education and student "centers." More information about these centers, as well as specific resources found within each, can be obtained at www.epa.gov/epahome/students.htm.

The *Green Teacher* is another educational resource that is useful for educating students. The magazine, which is written by educators, is designed to help educators enhance environmental and global education across the curriculum for all grade levels. Each issue contains articles, ready-to-use activities, resource listings and reviews, and a number of other resources. More information about the magazine can be found at www.web.ca/~greentea. Other educational resources for K−12 educators are available from the Water Environment Federation (www.wef.org/WefStudents/index.htm), the Wisconsin Department of Natural Resources (www.dnr.state.wi.us/org/caer/ce/bureau/education/education.htm), Project WET (www.montana.edu/wwwwet), and a number of other organizations and programs throughout the country.

American Oceans Campaign offers storm water runoff education resources in many different formats, including ads, videos, brochures, fact sheets, curricula, and newsletters. American Oceans Campaign started collecting these resources in 1999 from government and nongovernmental organizations and private agencies. These resources can be found at www.americanoceans.org/runoff/epa.htm.

The Colorado Water Protection Project has created the "Colorado Water Protection Kit" which is a useful booklet of storm water information. This kit contains information on polluted runoff, landscaping, yard and garden products, pet waste, household hazardous waste, motor oil and automotive products, boating and marinas, conservation, and septic systems. The Protection Kit can be found at www.ourwater.org.

Effectiveness

The effectiveness of storm water education in the classroom depends on many factors. The lessons and activities must be interesting and fun, and most importantly, they must be targeted to the correct age group(s).

Benefits

The benefits of teaching schoolchildren about storm water issues are plentiful. These children will learn about environmental issues early and will therefore become interested and perhaps involved at earlier ages. Schoolchildren often tell their parents what they learn in school. Therefore, teaching children about storm water is an effective way to pass environmental awareness to their parents and throughout the entire community.

Limitations

One of the limitations of classroom education is being able to incorporate storm water issues into the school curricula. With so many subjects to teach, environmental issues might be viewed as less important. Another limitation is the cost of new materials.

Cost

Many classroom education materials are available free of charge by order or download from the Internet. Storm water agencies can generally supply information and materials. The cost of producing materials will vary with the scope of efforts. For example, producing classroom packets can cost as little as $100−$200, whereas the cost of permanent displays and models can be as high as $1,000−$5,000 or more. Make sure to get estimates from individual vendors before preparing the classroom educational materials budget. Work within attainable financial means. If applicable, contact corporations to sponsor the programs or to donate materials.

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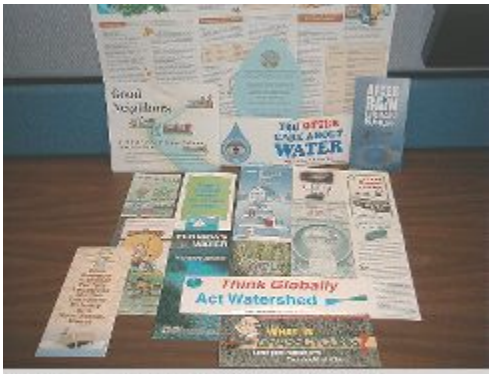
Storm Water Educational Materials

Public Education and Outreach on Storm Water Impacts

Description



Some examples of storm water educational materials

Storm water education starts with a well-thought-out and well-developed outreach plan. The outreach plan should identify goals and objectives, classify the target audience, identify the message to be conveyed, and explain how the message will be distributed to the audience.

Applicability

The first step for a municipality will be to determine who the target audience is or whether there is more than one audience to target (see Attitude Survey fact sheet). If there is more than one audience to address, can they be reached simultaneously or should they be prioritized? This will depend on the type(s) of audiences to be reached and the message(s). Once the target audience(s) has/have been determined and the storm water message has been packaged, distribution can begin. Outreach materials (posters, flyers, magnets, etc.) will not help prevent storm water pollution if the target audience does not receive and read them. Common distribution mechanisms include direct mail, door-to-door distribution, telephone, targeted businesses, presentations, handouts at events, media outlets, and messages posted in public places. Deciding how to distribute materials involves a close look at the level of time, resources, and work required. For example, if posters with a storm water message are to be printed, several things need to be decided: Should the posters be mailed to a specific audience? Should mailing tubes be purchased? Are addresses available?

Implementation

Outreach and education can be implemented in several ways. It is not always necessary that the entire audience be reached at once. Therefore, one or more of the following approaches might be useful.

Mail. The mail delivery system can be the best distribution vehicle if the target audience can be defined geographically or if a mailing list that encompasses the entire audience (e.g., landscapers, farmers, garages) is accessible. The U.S. Postal Service has established procedures for bulk mailings, and it is advisable to contact the post office early to discuss the pros and cons of this delivery approach. In addition, lightweight flyers and brochures can be added to general mailings, such as utility bills or notices about municipal services, without raising the cost of postage.

Door-to-Door. Door-to-door canvassing is very effective, but it is resource-intensive if employees are required to deliver the items. If it is too difficult or expensive to send employees door-to-door, it might be possible to work with local scout troops, environmental groups, or other organizations who are willing to canvass or deliver the message. A recommended approach is to print door hangers with the message that can be distributed without disturbing the occupants.

Businesses, Organizations, and Public Places. Using selected businesses and organizations to deliver the message can increase the likelihood of reaching the target audience and save money on postage. For example, if a brochure or poster on oil recycling is printed, the brochure/poster could be displayed at auto parts supply outlets. Lawn and garden centers could display an alternative lawn care poster. Businesses will be more likely to distribute materials if there is an added benefit to them. "Green company" endorsements could be included on the posters. Septic tank pumpers could be asked to distribute refrigerator magnets containing information on proper septic tank care and include a space on the magnet for the customer to write down the pumper's name and phone number. Schools and local organizations with building space are good candidates for the display of materials, especially posters.

Presentations. Presenting the message directly can be a very effective way to reach the target audience. The audience should be allowed the opportunity to ask questions, and any questions should be responded to immediately. Presentations can be given at events tailored to the audience, such as schools, retirement homes, local clubs, libraries, businesses, and associations.

Conferences. Conferences can be an excellent way to distribute messages through presentations, promotional give-aways, and displays. However, a conference might not reach all of the intended audience, and those who attend might already be familiar with the message and its significance.

Media. Messages that are recorded either in audio or video can be played on local radio or cable stations, particularly if they are required to make public services announcements. Sometimes the easiest way to distribute a message is to have someone else do it. If the target audience subscribes to an existing periodical, it might be more effective to include the message in that publication. It will certainly save time, instead of dealing with mailing lists, postage costs, or news media releases. It also increases the likelihood that the message will actually be read by members of the target audience since they are already familiar with the publication. Brochures and flyers can also be displayed in local libraries and other public buildings.

Effectiveness

The effectiveness of distributing storm water materials depends on many factors. These include the costs associated with designing, producing, and distributing materials. Other factors are the type of audience to receive the message and what the audience does with the materials. The quality of the materials also plays a role in the message's effectiveness. It is important that a brochure be carefully prepared to ensure that it is actually read. Another approach is to convey a message in a simple form, such as a magnet. A magnet posted on a refrigerator at home is likely to be more effective than a flyer that is wordy or complicated.

Benefits

Benefits to using storm water outreach material are that they can reach a large audience. If the slogans, graphics, and other aspects of the materials are catchy, the messages will be even more effective.

Limitations

Limitations to outreach materials are mainly associated with the time and cost of making and distributing the materials. Other barriers are the types of audiences to reach; for example, various age groups might need to be addressed separately.

Cost

The cost of distributing storm water messages depends on the method used and what is to be distributed. The U.S. Postal Service bulk mail has specific requirements, but discounted unit costs. Going door-to-door can be labor-intensive and requires staff or volunteers and transportation. Using businesses to distribute the message can be very effective and requires virtually no distribution cost. Electronic presentations (e.g., in Microsoft PowerPoint) can be a less expensive way to present information if computers and projectors are available for use or loan. Presentations can be costly, depending on the materials. Flip charts and posters can cost $5.00 each or more. Producing 35-mm slides (from slide film or computer disc) costs approximately $4.00 per slide.

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